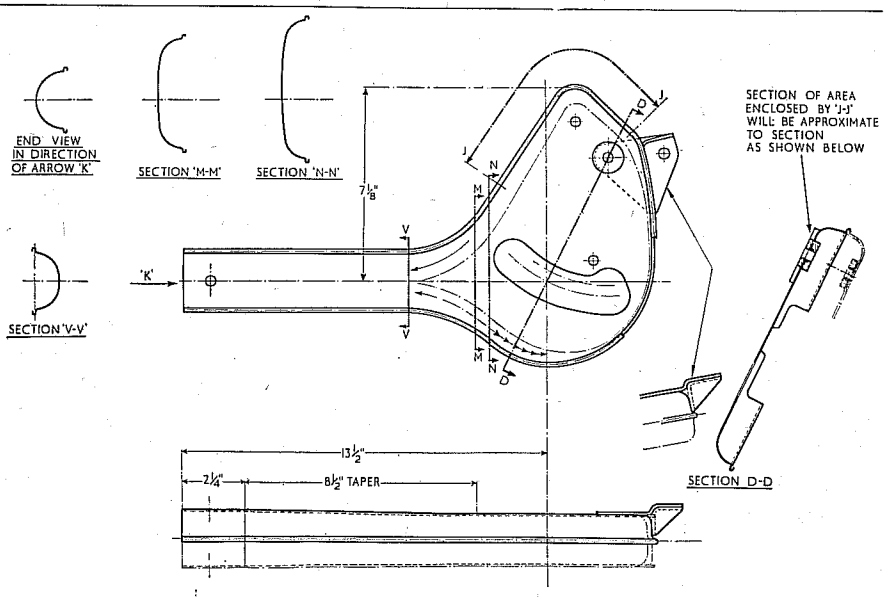
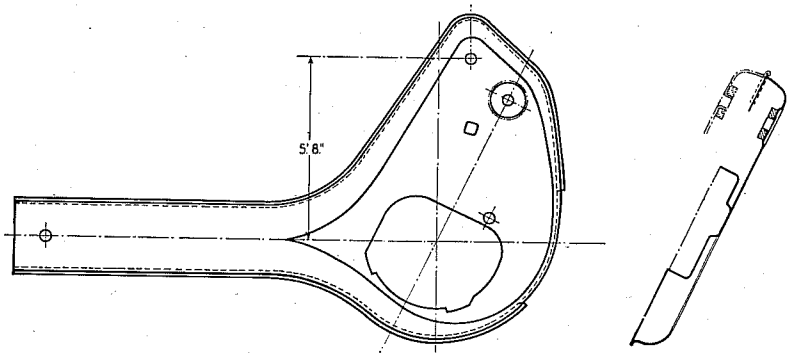


Fig. 12 *(right).—Dimensioned drawing of fork-leg inside pressing* (16-*gauge deep-drawing steel)*

Fig. 13 *(below).—Dimensioned drawing of fork-leg outside pressing* (16-*gauge deep-drawing steel)*



Bonderized and coated with grey primer. The threaded bosses are all projection welded into the tank by means of a 100-kVA Sciaky machine.

Fork Legs (*Figs.* 11, 12 *and* 13)

The two front fork legs are produced from two identical pairs of pressings, each pair being obtained from a single 16-gauge blank (produced in a 150-ton Rhodes press from Summers' E.D.D. steel) which is cropped and parted as a final operation. The large apertures in the leg components which give access to the suspension units and which are covered on the completed machine by a removable plate, are pierced in a separate operation on a Sweeney and Blocksidge 30-ton power press; the slot in the bottom of the leg is pierced on a hand press. The boss on the inside of each leg pressing, in which the front suspension pivots, is projection welded in place by a Sciaky welder. This boss is machined to size in a subsequent operation at the Ariel works.

One half of each leg has a larger flange than the other (produced during blanking on the Wilkins and Mitchell 300-ton press). The wide flange is turned through 90-deg. and the two halves of each leg are then jigged and spot tack welded together. The flange is then closed over in two operations (Fig. 14) on a Taylor and Challen No. $3\frac{1}{2}$ press; the first operation turns the flange through a further 45 deg., the second giving the final closing.

The large aperture in each leg is for fitting and adjustment of the front suspension unit.

Rear Engine Mounting Bracket

This component is first blanked in the form of the two joined halves of the component, and the required holes are produced in a combination pierce and plunge operation, using a Taylor and Challen No. $4\frac{1}{2}$ double-action press, while the two halves are still in one piece. The two halves are then separated. The air cleaner which is incorporated in the bracket is formed up and gas welded, and then welded into the bracket. The complete bracket is assembled on a jig consisting of two vertical rods which square up the two sets of pressings; the tubes (including the air cleaner) are slipped on the rods between the two pressings and the whole assembly spot welded together and then roller seam welded (*see* Figs. 15 to 17).

The flanged top of the bracket, used to attach the bracket to the frame, is now produced as a separate component which is then forced, in a jig, on to the main bracket assembly and then spot welded. The top portion is drawn, using a Taylor and Challen No. $4\frac{1}{2}$ press, from a shaped blank to save cropping.

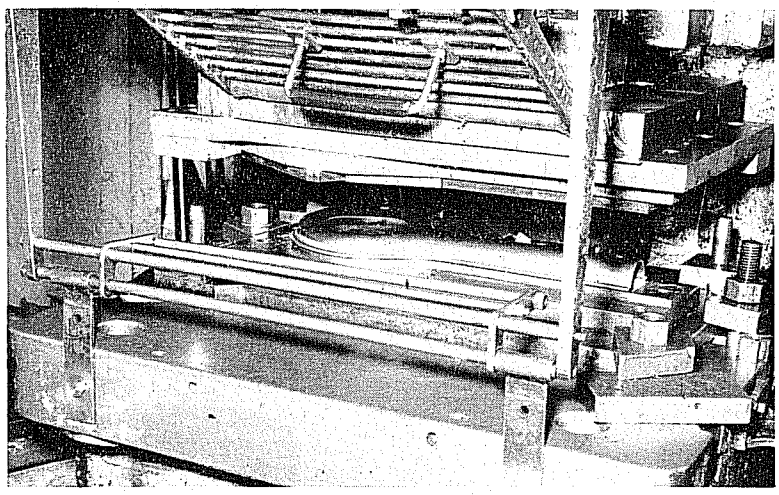


Fig. 14 (*left*).—*Fork leg pressings in press for closing over of flange after spotwelding*

Fig. 15 (*below*).—*Drawing of rear engine-mounting bracket which incorporates the air cleaner* (20-*gauge mild steel*)

Front Engine Mounting Brackets

Again, the two halves of each bracket are blanked in one piece and pressing carried out, after which the whole is cropped and then parted. Holes are combination pierced while the two halves are still joined. A Taylor and Challen No. 4½ press is used. The centre section of this bracket is blanked (Taylor and Challen No. 3½ press) and two boxing operations follow. Holes are pierced singly and plunged using a hand press. The bracket is spot and seam welded up

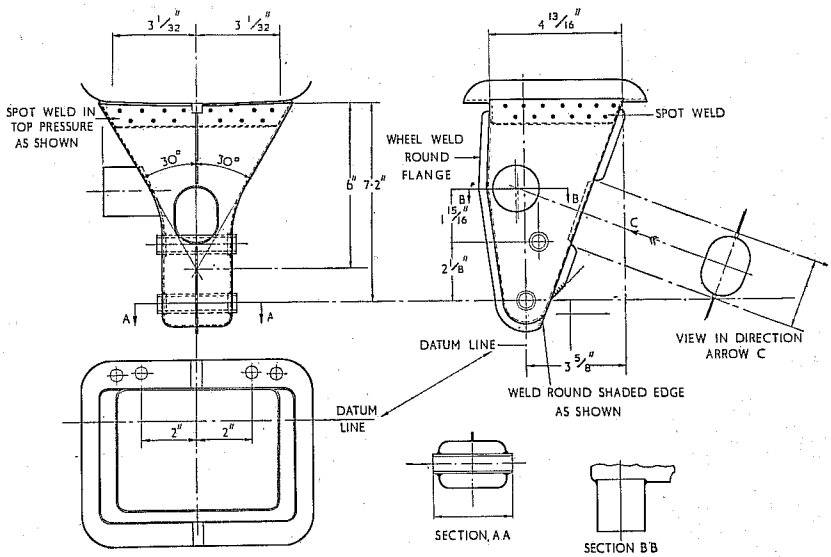
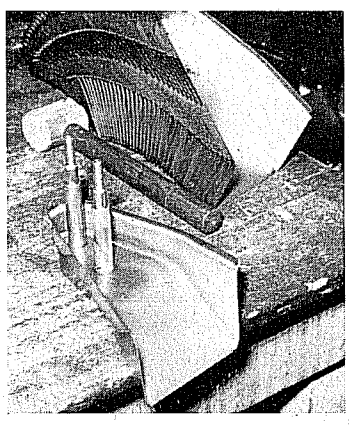


Fig. 16 *and* 16*a.*—*Method of assembling rear engine-mounting bracket*



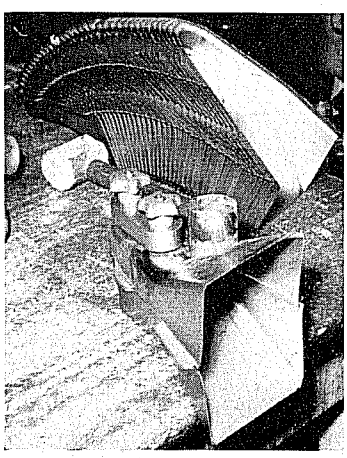
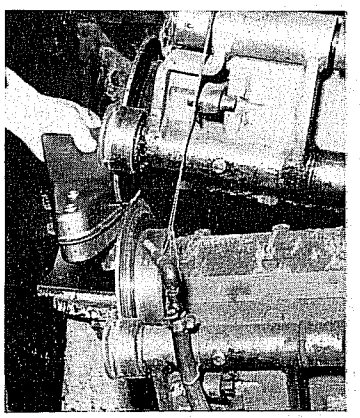


Fig. 17.—*Roller seam welding two halves of rear engine-mounting bracket*



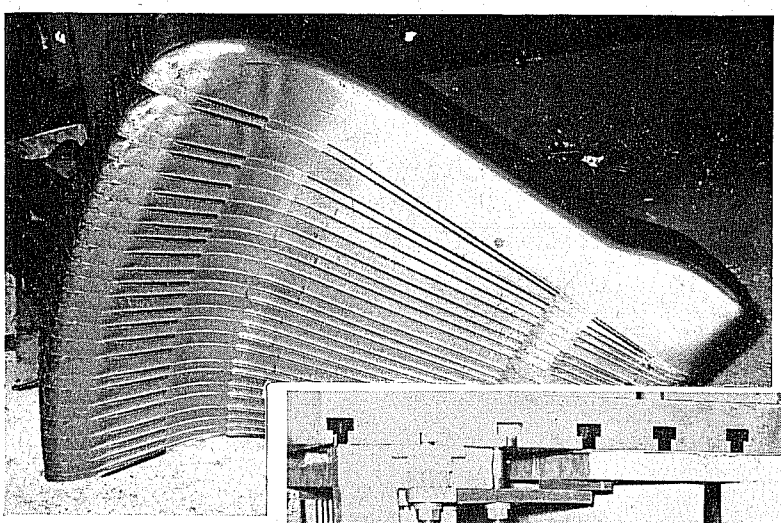


Fig. 18 (*left*).—*Half pressings of main frame*

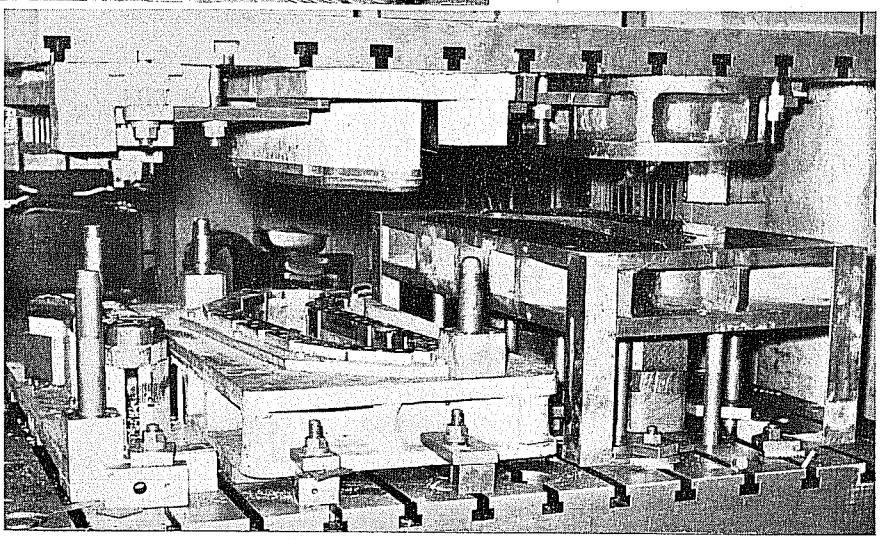
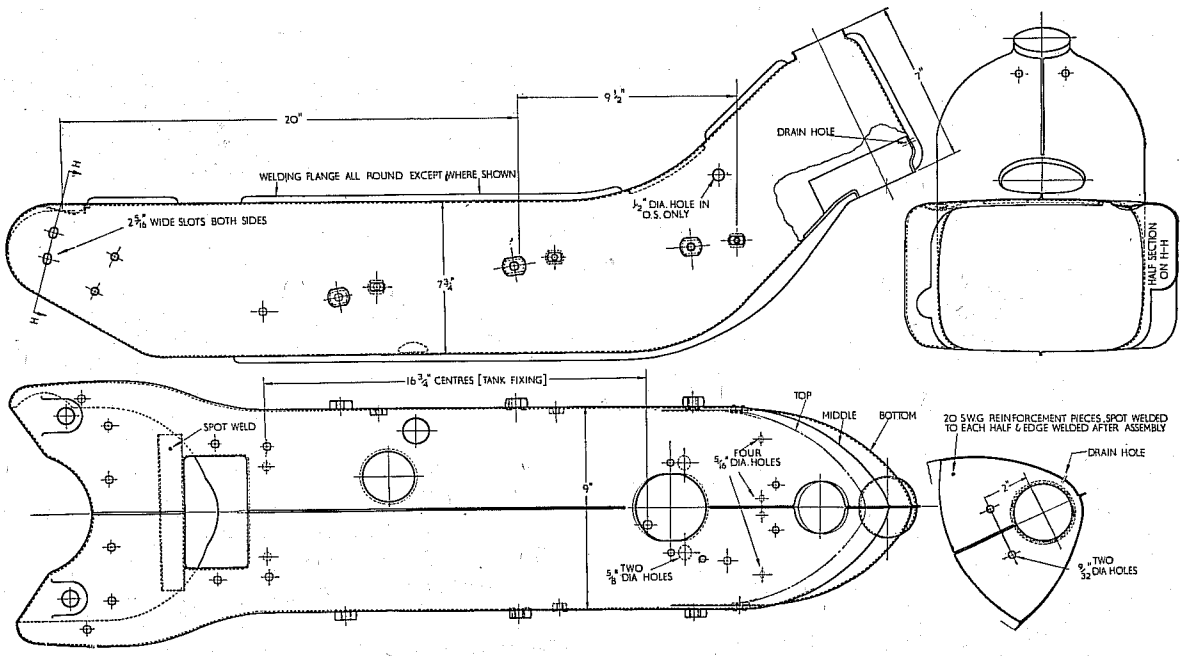


Fig. 20 (*below*).—*Press tools for half pressing of main frame*

Fig. 19 (*below*).—*Dimensioned drawing of main frame material* 20-*s.w.g. steel* (*deep drawing*). *The Quasi-Arc Co. Ltd.'s "Vortic"* 16-*gauge electrodes are used in the fabrication of the frame*



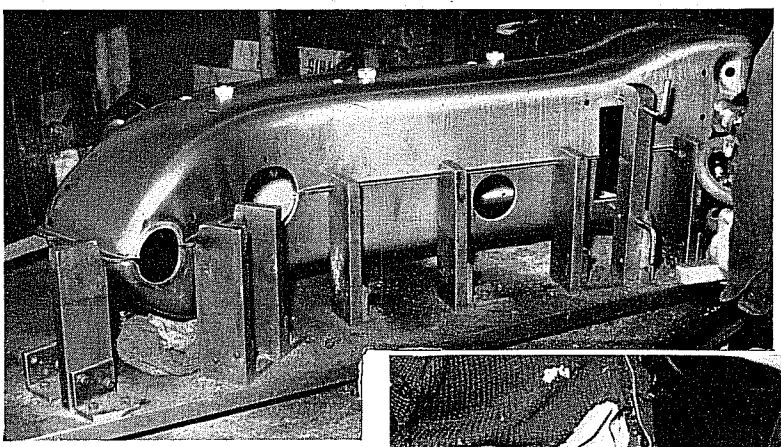


Fig. 21 (left).—Main frame pressings jigged for tack spotwelding together

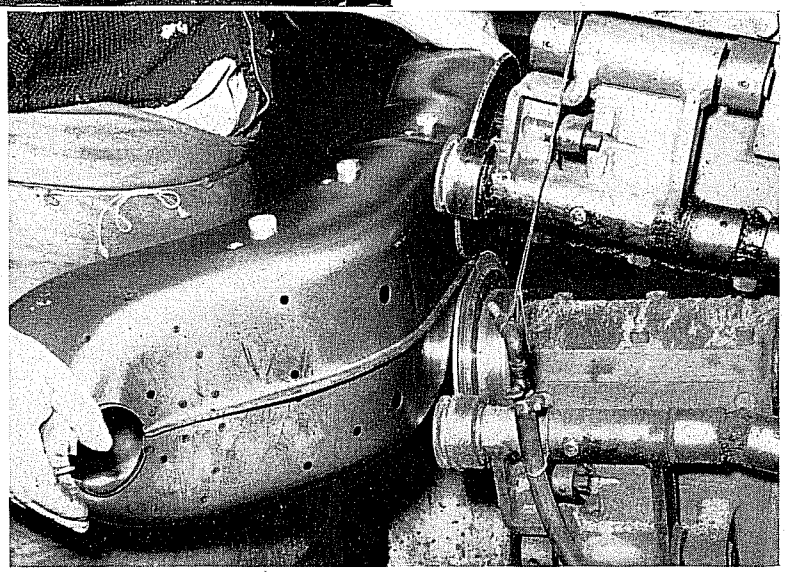


Fig. 22 (below).—Roller seam welding of main frame pressings

and the tubes forming the two engine mounting holes are gas welded in. These two brackets when attached to the frame are separated by a formed-up channel section piece.

Frame

The two halves of the main frame are massive 20-gauge pressings (Figs. 18 and 19) and necessitated the installation of the 300-ton Wilkins and Mitchell press. Its bed accommodates three sets of tools for raise, crop and com-

Fig. 23.—Jig for assembling engine-mounting brackets to main frame

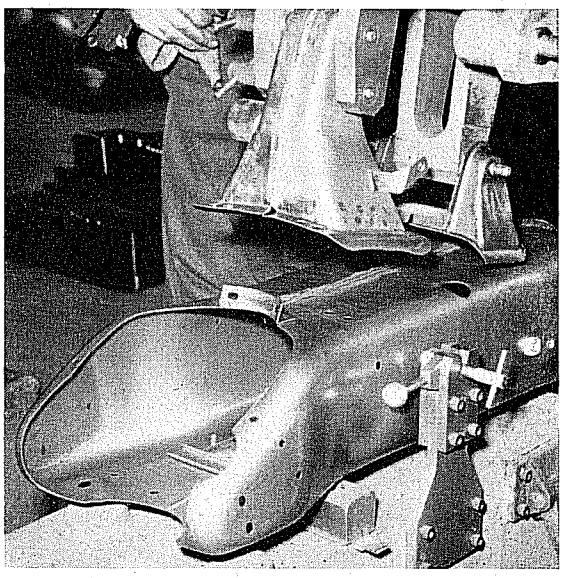


Fig. 24.—Tack spotwelding engine-mounting brackets to main frame

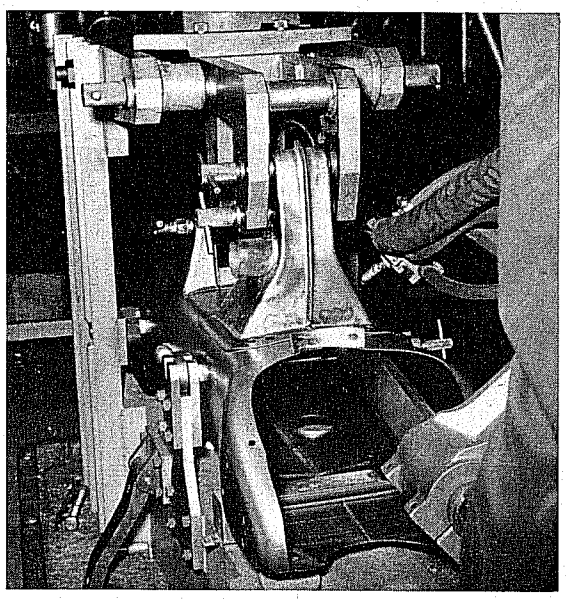
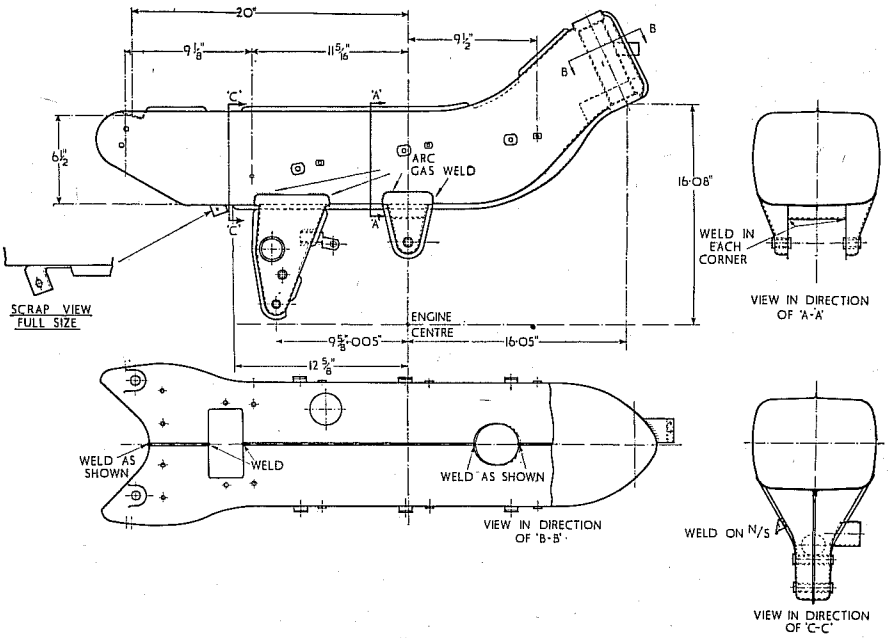


Fig. 25 (right).—Drawing of frame welding assembly



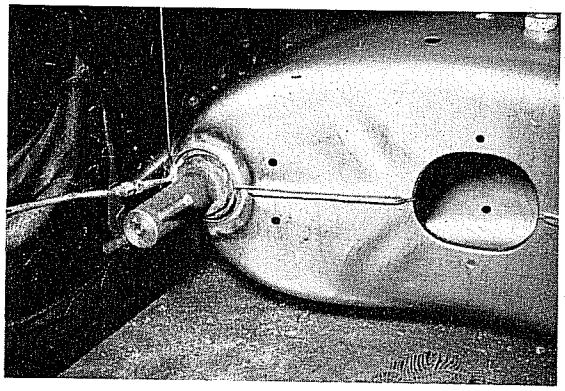
bination pierce operations on previously produced shaped blanks.

Assembly of the frame is by jigging the two halves, spot tack welding round the flange (Fig. 21), and finally joining by roller spotwelding (Fig. 22). A reinforcing piece is welded into the front end to stiffen up the steering head. The rear stiffeners are then added and also the mudguard bracket. The assembly is then jigged using the body attachment holes, and the engine mounting brackets are placed in the jig using the mounting holes as a location (Fig. 23). The front and rear engine mounting brackets are then spotted on to the frame (Fig. 24). The frame welding assembly diagram is shown in Fig. 25.

The assembly is then jigged again, and location this time is by the engine mountings. At this stage the steering head tube is welded into the frame (Fig. 26) and the horn mounting bracket gas welded to the front of the frame.

The steering head assembly consists of a gas-welded 16-gauge sheet-metal formed tube, on to the top and bottom of which a recessed pressing is gas welded. These pressings take the machined cups which form part of the steering head ball races. The head assembly is inserted from the bottom of the frame and when in position is gas welded to the top and bottom of the frame without using filler rod. Enough metal is allowed on the flange round the holes in the frame to allow for this. Thus the top side of the frame involves the welding of two thicknesses of metal, the frame itself and the pressing on the head assembly, while at the bottom three thicknesses are involved

Fig. 26 (below.)—Gas welding steering head tube into main frame



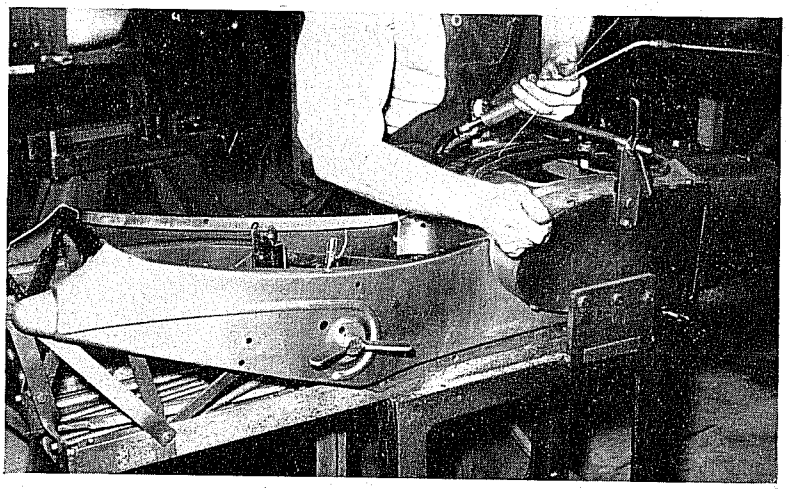


Fig. 27 (right).—Gas-welding operations on jigged body pressings